

REMARKS

The present amendment is in response to a non-final Official Action mailed on March 18, 2004, the shortened period of time for responding to the Official Action being set to expire on June 18, 2004. Claims 10-17 are pending in the application.

I. Amendments to The Claims and Specification

Applicants have amended claim 1 to recite that the method is a "batch process." Applicants submit that there is support for this amendment in the specification and that no new matter has been added. *See Appln. 10/089,022, Field of the Invention.*

The Examiner has also pointed out that in Paragraph 3, Applicants inadvertently cited the wrong patent number for the invention to Fagerlund. Applicants have thus submitted a revision to Paragraph [0003] of the specification, indicating that the correct patent to Fagerlund is U.S. Patent No. 4,578,149.

II. 35 U.S.C. § 112 Rejections Of Claims 10-17

The Examiner has rejected claims 10-17 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner contends that in claim 10, step C, the term digester does not have a proper antecedent basis. The Examiner also contends that it is not clear if the displacement at step C occurs in the cooking stage or in the impregnation stage.

With regard to the lack of antecedent basis in Step C of claim 10, Applicants respectfully submit that there is antecedent basis for the term "digester." In Step A of claim 1, the claim recites "charging said lignocellulose-containing

material to a *digester*" (emphasis added). Thus, the digester of Step A provides adequate antecedent basis.

Regarding the Examiners assertions that there is a lack of clarity in describing whether displacement at Step C occurs at the cooking stage or impregnation stage, Applicants respectfully submit that the Examiner's argument is misplaced. As will be explained in more detail below, a review of each of the steps in claim 1 makes it clear that displacement in step C occurs in a pretreatment step.

Step B recites "initially treating" the lignocellulose-containing material with an impregnation liquor. This portion of the claim also corresponds to Figure 1, illustrating that this step is the "impregnation liquor fill." Furthermore, the written description states that after the step of impregnating the lignocellulose-containing material with an impregnation liquor, the flow is closed and "the digester is pressurized and impregnation is completed." See ¶ 39 (emphasis added). Thus, Step B is expressly drawn to the impregnation stage.

Step C recites "treating said impregnated lignocellulose-containing material with hot liquor..., and displacing calcium containing spent liquor from said digester..." Step C also corresponds to Figure 1, which shows that step C is the "hot black liquor pretreatment phase." The specification further states that A2 is spent cooking liquor portions containing released calcium-contained material which is stored in tank 4. See Paragraph 42. Thus, step C occurs in a pretreatment stage.

Finally, Step D recites "heating and cooking said lingo-cellulose-containing material." Step D corresponds to Figure 1, which shows these stages as "temperature adjustment and Cooking Time."

In sum, the claims are consistent with the specification, indicating that displacement in Step C does not occur during impregnation or cooking, but takes place in a pretreatment stage between the impregnation and cooking stages.

III. 35 U.S.C. § 103 Rejections To Claims 10

The Examiner rejects claim 10 on the basis that it is obvious, in view of U.S. Patent No. 4,071,399 to *Prough* ("Prough"). The Examiner contends that it would have been obvious to the artisan that the hot digestion liquor displaces the calcium containing liquor as the impregnation zone is counter-current with the liquor exiting at the top of the vessel.

Applicants have amended claim 10 to recite that the method is drawn to a "batch process" to distinguish between continuous and batch processes. As will be explained herein, this amendment will further clarify the distinctions between Applicant's invention and *Prough*.

A primary distinction between *Prough* and the present invention is that *Prough* is directed toward a continuous process, whereas the present invention is directed toward a batch process. See Application 10/089,022, Paragraph 1 (stating that the present invention relates to "improvements in batch processes"). *Prough* teaches continually feeding chips into the treatment vessel and treating a continual stream of chips. *Prough*, Col. 6, lns. 17-24. There is no teaching or suggestion in *Prough* to implement the teachings of a continuous process in a batch process. Furthermore, due to the nature of Applicants' batch process, each stage of the process occurs in distinct steps. This allows for the displacement of calcium containing liquid to occur at the end of each step, the removal of displaced liquid to a holding tank, and the reintroduction of the calcium containing liquid into the digestion system at a later stage of the digestion system. In *Prough*, however, there

are no distinct displacement steps from individual stages because the process is continuous, and each stage of the process is simultaneously occurring in each of the different zones. In this regard, the displacement of *Prough* is vastly different because the counter-current flow of *Prough* from different zones is used to displace liquid in the first impregnation zone in order to regulate the temperatures and energy levels required for digestion. See Col. 1, lns. 56-68 to Col. 2, lns. 1-7. Moreover, *Prough* does not teach the reintroduction of the calcium containing liquid back into the digestion system at a later stage because, by virtue of the fact that *Prough* is a continuous process, the calcium containing liquids would merely be introduced into the system. This would, of course, cause additional calcium scaling. Indeed, *Prough* teaches that the digestion system is more effective when calcium is removed from the system in order to prevent the calcium from reacting with carbonate in the liquors. Thus, *Prough's* continuous process, in fact, teaches away from Applicants' batch process method by discouraging the presence of calcium in the digestion system.

Additionally, *Prough* expressly teaches withdrawing and reusing liquor in a continuous process to control the pH of the digestion system. See Col. 2, lns. 28-33. Moreover, *Prough* teaches that the advantage of withdrawing the liquor in this manner is that the displaced liquor can be utilized in other portions of the digestion system, see Col. 2, lns. 31-36. That is, *Prough* teaches withdrawal to achieve a "savings in ultimate material usage." See Col. 2, lns. 35-37. Thus, *Prough* does not teach or suggest withdrawing liquor in one stage and introducing it at another stage in order to accomplish a reduction in the amount of calcium scaling, such as taught in the batch process taught by Applicants' invention. Accordingly, Applicants' invention is not obvious in view of *Prough*.

IV. 35 U.S.C. § 103 (a) Rejection of Claims 11-17

The Examiner has rejected claims 11-14 as being unpatentable over *Prough*, and further in view of U.S. Patent No. 6,438,390 to *Snekkenes* ("*Snekkenes*"). Claim 15 and 16 are rejected under 35 U.S.C. § 103(a) as being patentable over *Prough* in view of U.S. Patent No. 6,468,390 to *Snekkenes* ("*Snekkenes*"), and further in view of U.S. Patent No. 6,090,240 to *Eneberg* ("*Eneberg*"). Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Prough*, in view of *Eneberg*.

As each of these rejections rely on *Prough*, and Applicants submit that the rejections based upon *Prough* are overcome, the Examiner's rejections are now considered to be moot.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he/she telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

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